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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/706,937	11/06/2000	Thomas Huber	N0070US	8577

37583 7590 11/27/2007

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EXAMINER	
LE, MIRANDA	

ART UNIT	PAPER NUMBER
2167	

MAIL DATE	DELIVERY MODE
11/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/706,937	HUBER ET AL.	
	Examiner	Art Unit	
	Miranda Le	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Amendment filed 09/07/2007.

Claims 1-6, 8-15 are pending in this application. Claims 1, 2, 14 are independent claims. In the Amendment, claims 1-2, 3, 14 have been amended. This action is made non-Final.

Response to Arguments

2. Applicant's arguments, with respect to claims 1-6, 8-15, have been fully considered; however, upon further search and consideration, a new ground(s) of rejection is made in view of newly found prior art.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 1, 2, 14 recite the limitation "a computer readable medium", however, the term "a computer readable medium" is not found in the Specification. There is insufficient antecedent basis for this limitation.

Claim Objections

4. Claims 1, 2, 14 are objected to because of the following informalities: Claims 1, 2, 14 recite the limitations "a computer-readable medium...". The term "a computer-readable medium" is not supported by the specification. There are insufficient antecedent

basis for these limitations in the claim. Applicant will be required to make appropriate amendment to the description to provide clear support or antecedent basis for the terms appearing in the claims provided no new matter is introduced.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 5, 6, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. (US Patent No. 5,168,452).

Yamada anticipated independent claims 1, 14 by the following:

As per claim 1, Yamada teaches a computer-implemented method of forming an index for a geographic database containing data that represent geographic features, said method comprising:

creating a single indexing structure *(i.e. An index file is for processing information in a block. As shown in FIG. 6(b), an index file includes the number of blocks and block numbers, col. 5, line 67 to col. 6, line 9)* that includes three dimensions *(i.e. east longitude, north latitude, exiting road number, entering road number, intersection number on a higher layer, intersection number on a lower layer, intersection number of a block alongside, col. 5, lines 20-63);*

forming a first dimension of said three dimensions to includes latitude boundary information *(i.e. north latitude, col. 5, lines 20-63);*

forming a second dimension of said three dimensions to includes longitude boundary information *(i.e. east longitude, lines 20-63)*, said data that represent geographic features *(i.e. intersection data, road data, col. 5, lines 20-63)* indexed by said structure are searchable using a latitude, a longitude and said first and second dimensions of said indexing structure *(i.e. These data are used to search for routes from a point of departure to a destination, col. 4, lines 19-34);*

forming a third dimension of said three dimensions to includes rank information, wherein each of said geographic features have an associated rank information, wherein said rank information has at least two levels *(i.e. Layer indicates the rank of a road. In other words, this is information indicating which layer of what rank possesses a road. The intersection number of an upper (lower) layer, e.g., 1-1-2, indicates layer 1 --block 1 --intersection number in this layer block. The same is true for an intersection number of a block alongside, col. 5, lines 20-63),* a first level of rank is associated with the most important geographic features and a second level of rank is associated with geographic features of lesser importance, said data that represent geographic features indexed by said structure are searchable for said rank of the geographic features using said third dimension of said indexing structure *(i.e. a layer 1 is a map of a principal trunk road network having intersection numbers I, II, III, and so on. The layer 1 is composed of a single block 1. A layer 2 is a map which also includes a road network of branch lines connected to the principal trunk road network, col. 4, lines 1-18);*

storing said index on a computer readable medium *(i.e. Intersection data, road data and node series data are stored in memory means such as a CD-ROM in advance, col. 13, lines 41-59).*

As per claim 14, Yamada teaches a computer-implemented index stored on a computer readable medium comprising:

a single indexing structure *(i.e. An index file is for processing information in a block. As shown in FIG. 6(b), an index file includes the number of blocks and block numbers, col. 5, line 67 to col. 6, line 9)* that includes a first dimension, a second dimension and a third dimension *(i.e. east longitude, north latitude, exiting road number, entering road number, intersection number on a higher layer, intersection number on a lower layer, intersection number of a block alongside, col. 5, lines 20-63),*

wherein said first dimension includes latitude boundary information *(i.e. north latitude, col. 5, lines 20-63)*,

wherein said second dimension includes longitude boundary information *(i.e. east longitude, lines 20-63)*, said data indexed by said structure are searchable using computer-executable instructions and a latitude, a longitude and said first and second dimension of said indexing structure *(i.e. These data are used to search for routes from a point of departure to a destination, col. 4, lines 19-34).*

wherein said third dimension includes a selectivity of said indexed data *(i.e. Layer indicates the rank of a road. In other words, this is information indicating which layer of what rank possesses a road. The intersection number of an upper (lower) layer, e.g., 1-1-2, indicates layer 1 --block 1 --intersection number in this layer block. The same is true for an intersection number of a block alongside, col. 5, lines 20-63)*, said data indexed by said indexing structure is searchable for said selectivity using computer-executable instructions and said third dimension of said indexing structure *(i.e. a layer 1 is a map of a principal trunk road network having intersection numbers I, II, III, and so on. The layer*

1 is composed of a single block 1. A layer 2 is a map which also includes a road network of branch lines connected to the principal trunk road network, col. 4, lines 1-18).

As per claim 5, Yamada teaches the invention of Claim 1 or 2 wherein said index is non-homogeneous *(i.e. An index file is for processing information in a block. As shown in FIG. 6(b), an index file includes the number of blocks and block numbers, col. 5, line 67 to col. 6, line 9).*

As per claim 6, Yamada teaches the invention of Claim 1 or 2 wherein said geographic features are roads *(i.e. a layer 1 is a map of a principal trunk road network having intersection numbers I, II, III, and so on. The layer 1 is composed of a single block 1. A layer 2 is a map which also includes a road network of branch lines connected to the principal trunk road network, col. 4, lines 1-18).*

As per claim 15, Yamada teaches the method index of Claim 1 wherein said data that represent geographic features are organized into layers based on said rank associated with the represented features *(i.e. Layer indicates the rank of a road. In other words, this is information indicating which layer of what rank possesses a road. The intersection number of an upper (lower) layer, e.g., 1-1-2, indicates layer 1 --block 1 --intersection number in this layer block. The same is true for an intersection number of a block alongside, col. 5, lines 20-63).*

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2, 3, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US Patent No. 5,168,452), in view of Israni et al. (US Patent No. 6,308,177).

As per claim 2, Yamada teaches a computer-implemented index stored on a computer readable medium for a geographic database containing geographic data that represent geographic features, said index comprising:

a single index structure *(i.e. An index file is for processing information in a block. As shown in FIG. 6(b), an index file includes the number of blocks and block numbers, col. 5, line 67 to col. 6, line 9)* that includes two spatial dimensions and a non-spatial third dimension *(i.e. east longitude, north latitude, exiting road number, entering road*

number, intersection number on a higher layer, intersection number on a lower layer, intersection number of a block alongside, col. 5, lines 20-63);

said geographic data indexed by said structure are searchable spatially using computer-executable instructions and said two spatial dimensions of said index structure and a latitude and a longitude *(i.e. These data are used to search for routes from a point of departure to a destination, col. 4, lines 19-34);*

said geographic data indexed by said structure are searchable for a non-spatial property of the indexed geographic data that represent the geographic features using computer-executable instructions and said third dimension of said index structure *(i.e. Layer indicates the rank of a road. In other words, this is information indicating which layer of what rank possesses a road. The intersection number of an upper (lower) layer, e.g., 1-1-2, indicates layer 1 --block 1 --intersection number in this layer block. The same is true for an intersection number of a block alongside, col. 5, lines 20-63)*, wherein said non-spatial property of the geographic data includes at least one of: rank associated with the geographic features represented by the geographic data, a granularity of said indexed geographic data, and a scale associated with said indexed geographic data *(i.e. a layer 1 is a map of a principal trunk road network having intersection numbers I, II, III, and so on. The layer 1 is composed of a single block 1. A layer 2 is a map which also includes a road network of branch lines connected to the principal trunk road network, col. 4, lines 1-18).*

Yamada does not specifically teach said structure is a k-d-tree index structure comprising a root node, intermediate nodes and a leaf nodes.

Israni teaches said structure is a k-d-tree index structure comprising a root node, intermediate nodes and a leaf nodes *(k-d-Tree, See Fig. 5A; Also used are various global index trees (per database region). In general, each of these trees may not fit into a single index parcel. An index parcel may contain a complete or partial tree (a global tree or subtree), or it may store more than one complete tree (subtrees of a global tree). Theoretical considerations imply that index parcels should have a size equal to the (average) size of the record parcels they index in order to minimize search times, col. 20, lines 48-55).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Israni at the time the invention was made to modify the system of Yamada to include the limitations as taught by Israni.

One of ordinary skill in the art would be motivated to make this combination in order to have storage of records in Peano key order (col. 22, lines 28-38) in view of Israni, as doing so would give the added benefit of reducing the time spent searching for record within a parcel (col. 22, lines 28-38) as taught by Israni.

As per claim 3, Yamada does not specifically teach said structure is a k-d-tree index structure comprising a root node, intermediate nodes and leaf nodes, wherein each node is a part of a parent-child relationship wherein each parent node includes control information from which one of at least two child nodes associated with the parent node are distinguishable based on search key.

Israni teaches structure is a k-d-tree index structure comprising a root node, intermediate nodes and leaf nodes, wherein each node is a part of a parent-child

relationship wherein each parent node includes control information from which one of at least two child nodes associated with the parent node are distinguishable based on search key *(k-d-Tree, See Fig. 5A; Also used are various global index trees (per database region). In general, each of these trees may not fit into a single index parcel. An index parcel may contain a complete or partial tree (a global tree or subtree), or it may store more than one complete tree (subtrees of a global tree). Theoretical considerations imply that index parcels should have a size equal to the (average) size of the record parcels they index in order to minimize search times, col. 20, lines 48-55).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Israni at the time the invention was made to modify the system of Yamada to include the limitations as taught by Israni.

One of ordinary skill in the art would be motivated to make this combination in order to have storage of records in Peano key order (col. 22, lines 28-38) in view of Israni, as doing so would give the added benefit of reducing the time spent searching for record within a parcel (col. 22, lines 28-38) as taught by Israni.

As per claim 8, Yamada teaches the invention of Claim 1 or 2 wherein said rank includes both integer *(i.e. Layer indicates the rank of a road. In other words, this is information indicating which layer of what rank possesses a road. The intersection number of an upper (lower) layer, e.g., 1-1-2, indicates layer 1 --block 1 --intersection number in this layer block. The same is true for an intersection number of a block alongside, col. 5, lines 20-63).*

Israni teaches fractional value *(i.e. In alternative embodiments, other-than-degree values can be chosen as units to represent dimensions, and measurement units can be chosen that include fractions, col. 12, lines 44-54).*

9. Claims 4, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US Patent No. 5,168,452), in view of Shaw (US Patent No. 6,684,219).

As per claim 4, Yamada does not specifically teach said index is homogeneous.

Shaw teaches index is homogeneous *(i.e. Boundaries, rivers, and transportation could all be examples of coverages. Coverages are broken down into feature classes 15, each of which represents a homogeneous set of attributes, col. 2, line 61 to col. 3, line 17).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Shaw at the time the invention was made to modify the system of Yamada to include the limitations as taught by Shaw.

One of ordinary skill in the art would be motivated to make this combination in order to build and maintain an object-oriented database from a vector product format (VPF) database in view of Shaw (Summary), as doing so would give the added benefit of providing a geospatial information distribution system that allows a user to rapidly build a user-specified topological display from a database having vector, raster, and/or text data as taught by Shaw (Summary).

As per claim 11, Yamada does not specifically teach the invention of Claim 14, wherein said selectivity is a scale associated with the indexed data.

Shaw teaches selectivity is a scale associated with the indexed data *(i.e. In this context, each separate product is defined by a product specification implemented with a VPF structure. Just as different types and scales of maps may be created for a geographic area, each designed for a different use, there are several types of VPF products with differing levels of feature content and density, col. 4, lines 7-30).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Shaw at the time the invention was made to modify the system of Yamada to include the limitations as taught by Shaw.

One of ordinary skill in the art would be motivated to make this combination in order to build and maintain an object-oriented database from a vector product format (VPF) database in view of Shaw (Summary), as doing so would give the added benefit of obtaining a geospatial information distribution system that allows a user to rapidly build a user-specified topological display from a database having vector, raster, and/or text data as taught by Shaw (Summary).

10. Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US Patent No. 5,168,452), in view of Ashby (US Patent No. 5,974,419).

As per claim 9, Yamada does not specifically teach said selectivity is a granularity of the indexed data.

Ashby teaches selectivity is a granularity of the indexed data *(i.e. In an alternative embodiment, the points may be taken as representing the areas of rectangles of a grid of appropriate granularity such that each rectangle of the grid encompasses only one node in the geographic area, col. 19, lines 6-22).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Ashby at the time the invention was made to modify the system of Yamada to include the limitations as taught by Ashby.

One of ordinary skill in the art would be motivated to make this combination in order to have a rectangle representing an existing parcel (of a previously created parcel type) divided into two or more rectangles in order to create parcels of a new type, in view of Ashby (col. 18, line 57 to col. 19, line 4), as doing so would give the added benefit of providing a way to organize and store data so that they are organized in the database and/or on a medium based the geographic locations of the features which are represented by the data as taught by Ashby (Summary).

As per claim 10, Yamada does not specifically teach said selectivity is a viewing altitude associated with the indexed data.

Ashby teaches this limitation *(i.e. Each of these locations 14 has a unique physical location (latitude, longitude, and optionally absolute or relative altitude) and each of the locations 14 can be uniquely identified by its two dimensional (or three dimensional) geographic coordinates, (i.e., latitude, longitude, and optionally altitude). A location 14 may correspond to one of the nodes located at the end of road segment data entity, or may correspond to a point-of-interest, such as a hotel or civic center, or may correspond to a point along a road segment at which the direction of the road changes. The locations 14 may represent anything physically located in the geographic area 12, col. 5, lines 20-36).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Ashby at the time the invention was made to modify the system of Yamada to include the limitations as taught by Ashby.

One of ordinary skill in the art would be motivated to make this combination in order to uniquely identify a location by its three dimensional geographic coordinates in view of Ashby (12, col. 5, lines 20-36), as doing so would give the added benefit of providing a way to organize and store data so that they are organized in the database and/or on a medium based the geographic locations of the features which are represented by the data as taught by Ashby (Summary).

11. Claims 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US Patent No. 5,168,452), in view of Dunworth et al. (US Patent No. 5,930,474).

As per claim 12, Yamada does not specifically teach said selectivity is an expiration date associated with the indexed data.

Dunworth teaches selectivity is an expiration date associated with the indexed data *(i.e. An expiration date field 1700 includes the date or dates that this listing expires, while a name field 1705 includes, in text form, the name to be shown on the listing. Address and city fields 1710, 1715, respectively show the street address to be shown on the listing and the city name. In addition, a state field 1720 as well as a zip code field 1725, respectively, include the state name and the postal or zip code of the listing, col. 24, lines 29-39).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Dunworth at the time the invention was made to modify the system of Yamada to include the limitations as taught by Dunworth.

One of ordinary skill in the art would be motivated to make this combination in order to display information stored within the yellow page database associated with an individual entity in view of Dunworth (col. 16, lines 48-65), as doing so would give the added benefit of once a user has advanced to a list of final destinations (e.g., Bill's hardware, ACE Hardware, and Handyman's Home Supplies under the topic of "Hardware Stores") using the yellow pages search engine, the user simply positions the mouse pointer over the appropriate final destination and clicks to access further information via the Notes portion of the yellow pages database, as taught by Dunworth (col. 16, lines 48-65).

As per claim 13, Yamada does not specifically teach said selectivity is a creation date associated with the indexed data.

Dunworth teaches selectivity is a creation date associated with the indexed data *(i.e. If this directory does not exist, it will be created. In the case where the directory does not exist, the anchor points to a default file in the specified directory, col. 26, lines 59-67).*

It would have been obvious to one of ordinary skill of the art having the teaching of Yamada and Dunworth at the time the invention was made to modify the system of Yamada to include the limitations as taught by Dunworth.

One of ordinary skill in the art would be motivated to make this combination in

order to organize information into a consistent presentation of menu selections and geographically organized information, in view of Dunworth (Summary), as doing so would give the added benefit of at specified levels of the geographically organized information, the user is presented with the option of accessing topically organized information from among several topic selections, wherein the topical information is defined by the fact that the topical information is associated with a particular geographical area as taught by Dunworth (Summary).

Conclusion

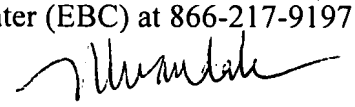
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is (571)-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Miranda Le
November 19, 2007